

Army Transportation Systems in a Twenty-First Century Joint Operational Environment

by

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Five components of the U.S. Army Transportation Systems collectively meet the Army's transportation contribution to move and sustain the Joint Force. These systems include rail vehicles, aircraft, wheeled vehicles, water craft, and movement control. This paper will examine the current state of Army Transportation following over a decade of war. The analysis begins with priorities for reset and overall cost of equipment and personnel to sustain Army Transportation Systems for future, twenty-first-century operations. These analyses will identify gaps and provide recommendations to eliminate needless redundancies. Finally, transportation planning must anticipate future problems and challenges in order to streamline and synchronize transportation systems for joint operations in support of GCCs.

Army Transportation Systems in a Twenty-First Century Joint Operational Environment

When you do battle, even if you are winning, if you continue for a long time it will dull your forces and blunt your edge . . . If you keep your armies out in the field for a long time, your supplies will be insufficient. Transportation of provisions itself consumes 20 times the amount transported.¹

—Sun Tzu

During the first decade of the twenty-first century, the U.S. military adapted to change, operating more than ever in a joint, interagency, intergovernmental and multinational (JIIM) environment. This adaptation added depth and complexity to military operational decisions. The U.S. military transportation system is an essential element in strategic planning to operate successfully, while itself subject to the JIIM environment. Military leaders must constantly assess the dynamics of the changing environment; adaptation and innovation are especially important in the pressing economic times of the twenty-first century.

Increasingly joint transportation systems rely on information operations that are highly vulnerable to adversaries attempting to disrupt logistics lines and penetrate U.S. defense systems guarding the nation's interests and safety. The U.S. military must provide logistics distribution from each of the DOD service components. The US and allies continue to seek efficient and effective ways to provide commercial avenues to move cargo and passengers by surface or air safely. Transportation is the crucial element for more CONUS-based Joint Forces to conduct expeditionary operations supporting Geographic Combatant Commanders (GCCs) in the joint operational environment (JOE). Joint Publication 3-0, *Joint Operations*, defines the joint operational environment (JOE):

The Joint Force Commander's operational environment is the composite of conditions, circumstances, and influences that affect employment of capabilities and bear on the decisions of the commander. It encompasses physical areas and factors (of the air, land, maritime, and space domains) and the information environment (which includes cyber space). Included with-in these are enemy, friendly, and neutral systems that are relevant to specific joint operation. The nature and interaction of these systems will affect how the commander plans, organizes for, and conducts joint operations.²

Army transportation systems in a joint operational environment must integrate and synchronize with other service components to a greater degree in order to continue closing gaps in efficiency, while maintaining the ability to meet the needs of all GCCs in their Areas of Responsibility (AOR). The U.S. Army must continue to take action streamlining both aged and modern transportation systems, focusing to achieve joint effects more effectively and efficiently given the latest fiscal challenges.

Army Transportation

Five components of the U.S. Army Transportation Systems collectively meet the Army's transportation contribution to move and sustain the Joint Force. These systems include rail vehicles, aircraft, wheeled vehicles, water craft, and movement control. This paper will examine the current state of Army Transportation following over a decade of war. The analysis begins with priorities for reset and overall cost of equipment and personnel to sustain Army Transportation Systems for future, twenty-first-century operations. These analyses will identify gaps and provide recommendations to eliminate needless redundancies. Finally, transportation planning must anticipate future problems and challenges in order to streamline and synchronize transportation systems for joint operations in support of GCCs.

Rail

The Railways and Telegraph Act of 1862 created the US Military Railroads (USMRR) and enabled Army transportation to open a new frontier for rail capability in the U.S.³ Today the U.S. Army Tank-Automotive and Armaments Command (TACOM) has a large, industrial fleet of locomotives distributed throughout the U.S. These locations are at Army ammunition, arsenal, and tank plants, camps, depots, ocean terminals and posts, as well as Air Force, Navy, and Marine bases, stations, centers, and shipyards. TACOM manages a total of 169 locomotives. Over the past few years the Army contracted with the Volpe National Transportation Systems Center, an element of the U.S. Department of Transportation's (DOT's) Research and Innovative Technology Administration (RITA).⁴ This partnership refurbished approximately 103 locomotives with high-efficiency, multi-stage engines.⁵ This redesign feature gives the Army and the Joint Force much greater capability with fewer numbers of locomotives with greater efficiency, recapitalized for a number of decades before the next generation redesign becomes necessary. This locomotive asset inventory also employs a substantial civilian work force, 350 personnel across the nation.

Surface Deployment Distribution Command (SDDC) manages the Defense Freight Railway Interchange Fleet (DFRIF), DOD's fleet of railcars, which currently numbers just under 2,100, of which 87 percent are flatcars. The Army Strategic Mobility Program (ASMP) rail cars constitute more than half of the DFRIF. The largest cars in the ASMP fleet are those to move M-1 Abrams tanks and the bulk petroleum, oil, and lubricants (POL) tank cars. The remaining freight cars in the DFRIF are all special purpose, all belonging to the Navy except for twelve chemical tank cars owned by the Air Force.⁶ DOD maintains all railcars at U.S. military installations.

DOD also has approximately thirty-eight partnerships with US commercial firms to surge CONUS deployments. For example, five of the corporations which partner with the military are: the Burlington Northern Sante Fe (BNSF), Kansas City Southern (KCS), and Union Pacific (UP) for most of the military rail lines of communication (LOC) west of the Mississippi River, and the CSX and Norfolk Southern (NS) for rail LOCs east of the Mississippi River.⁷

The significance of U.S. Army rail assets and related commercial partnerships is the sheer volume and weight of land transport capability and capacity to surge CONUS deployments, also reducing highway road congestion. In an era of fiscal conservatism rail will become an even greater joint land transportation choice of resource.

Even though the U.S. Army can tap into vast rail capability and capacity in CONUS, there remains only one deployable rail battalion today. The 757th Transportation Battalion (Rail) is in the U.S. Army Reserve and located in Milwaukee, Wisconsin.⁸ This battalion has four subordinate units: the 1150th Transportation Company, Chicago, IL; the 1151st Transportation Company, Granite City, IL; Headquarters and Headquarters Detachment (HHD), 1151st (Detachment 1), Milwaukee, WI; and the 1152nd (Detachment 1) Transportation Company, Ft. McCoy, WI.

The 757th Transportation Battalion, working with the U.S. Army Transportation School, Fort Lee, VA, is conducting research for potential development of an Expeditionary Rail Center (ERC). Former Transportation Commandant Brig. Gen. Edward Dorman identified a strategic gap⁹ for the GCC, a rail information center, and initiated this study to find out what the significant strategic capability would be to create

such a center. The current U.S. Army Transportation School Commandant Brig. Gen. Stephen Farmen continues to study this gap by working with the U.S. Army Reserve Command to identify, further research, and proceed to create such a resource capability for GCC reach-back to subject matter experts (SME).

The ERC would provide GCCs a centralized location to consolidate rail expertise during steady-state and Phase 0 operations. If the ERC is designed with joint structure from inception, it will enable all Services to integrate staff representatives. An ERC in theater would enable easy access to required resources to assist GCCs with: local rail network capability and infrastructure assessments, rail mode feasibility studies, advice on rail-employment capabilities, engineering knowledge on structural-assessment capability for rebuild efforts, and rail-modeling examples and solutions for combined U.S. and host nation (HN) issues.¹⁰

Upon execution of operations in theater, the 757th Transportation Battalion and its four subordinate units can play a major role in assisting GCCs. Their capability to support with individual augmentees or small units enhances the Combatant Commander's ability to integrate railroad SME with the HN to facilitate effective measures and best solutions for operational rail issues.

The ERC has the potential to achieve new levels of joint and interagency synergies in theater. DOD rail is a capability rarely tapped for operations in recent decades. Leveraging HN rail capability and capacity to the maximum extent could reduce demand on scarce Army truck resources in a deployed theater.

Finally, further exploration of rail operations in CONUS is necessary. There is potential for more efficient and effective movements of unit personnel by rail vice bus,

though clearly mission dependent. Such options could reduce military bus convoys competing with increased urban traffic.

Aircraft

Army aviation has long played an essential role in the transportation of troops and equipment since its inception during WWII; Army aviation has made many advances in this sector of transportation. The U.S. Army's current fleet of cargo and utility aircraft as of March 2012 still includes a myriad of different types: CH-47 Chinook, UH-60 Blackhawk, LUH-72 Lakota helicopters, and C-12, C-23 Sherpa, C-26, C-31, C-37, C-20, CE-182, C-20B, O-2A, T-34, TG-14, U-21, UV-18, UV-20, UC-35, and T-6 fixed-wing aircraft. This fleet totals 2,799 airframes, distributed to all of the GCCs and manned almost evenly between the Active and Reserve Components.¹¹

There are still nineteen different types of Army aircraft used to sustain the force on any given day, managed by various agencies across the Army. The Fixed Wing Aircraft Office, created on October 28, 2011, became the Army's single lead agency to manage the Army's 366 total fixed-wing fleet, estimating 10-15 percent savings in overhead. It has already finished 111 air-worthiness releases, and is looking to replace the 112 C-12 aircraft in the inventory.¹²

Meanwhile, the Army logistics sustainment community predominantly used CH-47 and UH-60 helicopters; joint delivery used Navy and Marine CH-46 and CH-53, and Air Force C-17 and C-130. Multiple coalition partners had contributed small numbers of C-130s. Other coalition equivalent types, as well as interagency and intergovernmental aircraft including commercial charters, had added to the mix.¹³

Administrative and sustainment costs of an operational Army rotary-wing fleet come with a large price tag to the Operations and Maintenance (O&M) budget,

approximately 3.3 billion dollars from 2007 and projected to 2030.¹⁴ This expenditure provides internal Army ability to maneuver and sustain the force in combat, training, and peacetime operations.

In an effort to provide more-effective and efficient airlift, the Low Cost Low Altitude (LCLA)¹⁵ aerial drops to ground troops in austere areas of operation without ground transport access, the Army and Air Force determined the Lockheed Martin Alenia Tactical Transport Systems (LMATTS) C-27J¹⁶ aircraft was suitable, allowing potential elimination of most contracted commercial air to provide LCLA. In dispute concerning who should purchase and manage the aircraft, the Army ceded the C-27J procurement, operation, and maintenance to the U.S. Air Force. In June 2012 the Air Force made a decision to eliminate the contract for C-27J in favor of the C-130 for the Fiscal Year (FY) 2013 budget.¹⁷

The closure of the C-27J aircraft program has created an immediate shortfall and future void in cargo lift and LCLA capability and capacity. The Air Force cancelled the procurement of the C-27J and increased the number of C-130 cargo aircraft in future procurement. However, the C-130 has often proven to be excess capacity for many Army requirements for aerial delivery and resupply in theater. Moreover, if the landing zones in the areas of operation are insufficient for C-130s or the C-130s are dedicated to other intra-theater airlift missions, the Army will have to pursue other options. The cancellation of C-27J Spartan likely will force the Army to contract LCLA capability in future combat operations as took place in Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND).

Furthermore, the C-23 Sherpa had long outlived its usefulness. In addition to extensive service in, two had flown missions in the Sinai. The Army has begun divesting the seventy-nine aircraft. Thirty-four left the fleet in 2011. Seven departed in 2012. The Army expects to retire the remaining thirty-eight by the beginning of FY 15.¹⁸

The Army in fact has begun a new procurement initiative for a Future Fixed Wing Utility Aircraft. The proposal is at the Pentagon. Pending approval, the next step will be an Analysis of Alternatives.¹⁹

Meanwhile, Army rotary-wing aircraft, particularly CH-47 heavy-lift cargo and assault transport helicopters, have flown excessively over the last decade of war, greatly exceeding projected flying hours.²⁰ Extensive upgrade to 300 of 425 CH-47D airframes to CH-47F standard began in 2004.²¹ However, this improved CH-47F has already flown over five-and-a-half years of missions in Iraq and Afghanistan, and has been assuming more of the lift workload in Afghanistan.²² Moreover, this program is to maximize air assault and associated capability, not aerial resupply. The almost-complete retiring of Navy and Marine CH-46s for the V-22 Osprey will not add to joint, theater-level resupply capability.

The loss of the C-27J relates to other challenges with the use of commercial contract aircraft in theater, seams in interagency interoperability. For example, during OEF in Afghanistan in March 2011,²³ Federal Aviation Administration (FAA) officials made an on-the-spot inspection and determined that contractor aircraft required a change to cargo distribution rollers. The FAA grounded the entire aircraft fleet until the contractor made the change. The FAA was conducting their mission to establish a viable Afghan civil aviation operation. However, their actions impacted the execution of

military logistics in support of combat operations. A U.S. Government agency in a foreign country created a void in combat capability. Senior leaders and staff could not find a solution on the spot. This example could be an indicator of the ever-increasing complexity of operations in a JIIM environment which Army and Joint transportation systems will face.

The air transportation contribution to the Joint Force today is utterly important to mission success, especially in the twenty-first-century JOE of a more CONUS-based Joint Force and deployment challenges of anti-access and area denial (A2/AD). The question is how to address the Army's shortfall in Short-Takeoff and Landing (STOL) capability, given the old age and ongoing retirement of the C-23 Sherpa fleet.

Wheeled Vehicles

Probably most notable and associated with the U.S. Army is the ground transport truck fleet. Many think of Army Truck 1/4 Ton 4x4, M-38 (G-740), the famous jeep, or the 2 and 1/2 ton 6x6, M-38, cargo truck, the "deuce and a half," from movies about World War II, Korea, and Vietnam. However, over the last decade of war in OEF and OIF/OND the more notable trucks are the various versions of the High Mobility Multi-purpose Wheeled Vehicle (HMMWV), especially the armored variants. A 1 1/4 ton 4x4 vehicle procured for the Army and in use across all service components, the "Hummer" has become as famous as the old jeep.

Another highly-publicized, politically-charged vehicle added to the inventory in hasty necessity to mitigate or eliminate the Improvised Explosive Device (IED) threat is the family of Mine Resistant Ambush Protected (MRAP) vehicles made by multiple companies in locations across CONUS to expedite fielding to the combat zone rapidly.²⁴

The role of MRAP in the future vehicle fleet is a topic as charged as their procurement, and is beyond the scope of this paper.

The Army's less talked about, but significant for long-term, theater sustainment, are the fleets of heavy lift trucks, known as the Family of Heavy Tactical Vehicles (FHTV). These include the Truck M915 for line-haul missions in theater, the series of Heavy Expanded Mobility Tactical Truck (HEMTT), and the Heavy Equipment Transporter (HET) M1070. Although all trucks are essential to the maneuver units in combat, the emphasis in this paper will be the FHTV. The FHTV is the series of heavy-lift, ground-transport vehicles capable of theater-level sustainment of the Joint Force in a deployed theater for prolonged operations by moving large volumes of cargo from Sea Ports of Debarkation or Embarkation (SPOD/E) or Air Ports of Debarkation or Embarkation (APOD/E). In an effort to ensure end-to-end sustainability to the Joint Force heavy-lift truck transport remains an important aspect of reset after extended operations in Afghanistan and Iraq.

The total number of Army wheeled vehicles is approximately 265,000 as of May 2012.²⁵ Some 34,082 of these are heavy-lift trucks.²⁶ In an effort to reduce inventory and reset for future operations, the Army is framing efficiency and effectiveness of this heavy truck fleet into three lines of effort: transform, replace, and improve.

The M915s fall under replace. Their importance for theater line haul prompted their recapitalization and extensive rebuild essentially as a new truck, the M915A5. The process utilized any and all parts capable of being transformed to a new condition. This extensive program will provide 5,504 M915A5s for the twenty-first-century fleet from the current 7,330. The M915A5 incorporates the latest commercial technologies and is

based upon Freightliners Western Star tractors.²⁷ Military modifications include an armored cab, with provision for armor add-ons. Work began in October 2010, but could not meet projected completion in April 2012. The program will last into early 2015.²⁸

The HEMTT family of vehicles falls under improve. The Army is returning HEMTTs to the Original Equipment Manufacturer (OEM), Oshkosh Corporation, for recapitalization, involving total disassembly and rebuild to the latest model A4. This technological reconfiguration will be a new truck equivalent with 0 miles/0 hours and new production configuration to include bumper-to-bumper 13-month full warranty from the manufacturer. A recap vehicle is indistinguishable from new production vehicles. Recap provides 100 percent parts commonality with new production vehicles and is built on the same production line. The current HEMTT fleet strength is 24,255. Recap will field a reduced inventory of 21,154 with new automotive and drive-train.²⁹

The M1070 HET is the premier road transporter for the Army's heavy equipment. This capability is especially important for line haul of the M-1 Abrams and M-2/3 series of tanks and infantry fighting vehicles. There are 2,497 HETs in the Army inventory. They fall under sustain. Upon reduction there will be 2,131 HETs for future operations.³⁰ The result will be the upgraded M1070A1 with several enhancements.³¹

The extensive dependence in the last seven years of OIF/OND on contracted trucks, the white commercial trucks, had freed the Army to send the heavy-lift truck fleet back to U.S. Army depots, jointly working with corporations rebuilding the Army's heavy-lift truck fleet. Recapitalization of the heavy-lift vehicle fleet from heavy usage over the last seven years enables the Army to be approximately 80 percent operationally ready of the current fleet by the end of 2013. This accomplishment will allow the Department

of the Army (DA) G4 also to reset and equip the Army's tactical vehicle fleet for the Brigade Combat Teams (BCTs) in accordance with the Army Force Generation (ARFORGEN) cycle to meet future and projected mission readiness requirements.³²

The Army's wheeled vehicle fleet is the largest in DOD. This vast transportation asset was well suited for cost reductions in near-term budget reductions. The reset programs for the FHTV discussed above demonstrate an effort to reduce the size of the fleet while accomplishing recapitalization for future operations.

Moreover, use of Operational Contingency dollars in the past decade has paid for those contracted white truck fleets to sustain the force. DA G8, in coordination with DA G4 and the Army Service Component Commands (ASCC) of the GCCs, has now aligned routine operational and maintenance dollars to sustain the CONUS rebuilding of the green truck vehicle fleets, employing U.S. Government civilians and contractors. This major effort has a significant impact not only on the Army, but demonstrates implementation of several aspects of strategic guidance.

Watercraft

Watercraft is least associated with the Army, yet essential to force readiness and GCC capability to have freedom of movement, especially with the current focus on Pacific regional operations. The U.S. Army currently maintains 118 watercraft platforms and systems. System types include Harbormaster Command and Control System, Landing Craft Mechanized Mod 1, Landing Craft Mechanized Mod 2, Landing Craft Utility-2000, Logistics Support Vessel, Barge Derrick-115 Ton, Small Tug 900 Series, Large Tug 128ft, Containerized Maintenance Facility, Modular Causeway System with four sub-systems, and approximately 1,750 Soldiers with an estimated value of \$1.7B.³³

These watercraft systems break down into causeways, landing craft, and floating systems.

The majority of Army watercraft systems are old, in fact approximately fifty years old and fast approaching the end of useful life or in some cases beyond useful life. This capability for joint transportation systems is a critical enabler in a JIIM environment. This transportation system provides the Joint Force the ability to place a land force just about anywhere in the world via water-to-land transfer operations. The Army watercraft systems give the GCCs not only a mode to transport a force to combat, but to natural disaster, humanitarian response or any other mission requirement necessary to ensure stability within a GCC's AOR.

The Army recognizes the criticality of these specialized enablers. The 7th Transportation Group had reflagged to the multifunctional 7th Sustainment Brigade at Fort Eustis, Virginia as part of Army Transformation to the Modular Force. The unit then deployed to Iraq in 2008-2009 as a multifunctional support brigade HQ. This change had created a void in command-and-control over the Army's specialized terminal units. Thus, the 7th Sustainment Brigade will reconfigure to the 7th Transportation Brigade Expeditionary (TBX) later in 2013.³⁴ This conversion will provide the necessary expertise of functional command for these units.³⁵

The Navy's Military Sealift Command (MSC) fielded the first of ten projected Joint High Speed Vessels (JHSV) in February 2013. The JHSV can move 600 tons over 1,200 nautical miles at an average speed of 35 knots with a crew of 22 civilians. This class adds considerable maritime lift capability and joins an estimated 110

Merchant Marine crewed ships under MSC control.³⁶ This initiative prompted the Army to cancel its plan to procure seven JSHV on its own.

Movement Control

The Army has a unique transportation battalion, usually referred to as the Movement Control Battalion (MCB). It is unlike any other transportation asset in the joint inventory. The MCB operates at the tactical, operational, and theater-strategic levels. The MCB integrates and synchronizes all other transportation capabilities in the Army: air, rail, truck and sea. This battalion not only connects the various types of transportation in the Army, it also operates frequently at echelons above corps (EAC). The MCB often works jointly with subordinate organizations of U.S. Transportation Command (USTRANSCOM): Air Force Air Mobility Command (AMC), Army Surface Distribution and Deployment Command (SDDC), and Navy Military Sealift Command (MSC), as well as U.S. Department of Transportation, Department of State, and other Interagency and Intergovernmental agencies.

The Battalion Headquarters has fifty-seven Soldiers, a doctrinal span of control over four to ten Movement Control Teams (MCT), and usually an Inland Container Transfer Company (ICTC).³⁷ The Army currently has fifteen MCBs, five AC and ten USAR.³⁸ The MCB can be assigned to a Sustainment Brigade, Expeditionary Sustainment Command (ESC), or a Theater Sustainment Command (TSC) according to doctrine. Almost always the MCB will be assigned to the highest-level of sustainment command operating in a theater operation, highlighting its tactical, operational and theater-strategic roles for the GCC's ASCC, an enabler to set and maintain theater movement operations. In CONUS the MCB is usually assigned under a brigade that

reports to an ESC or TSC. An AC MCB is assigned under a brigade for readiness and accountability.³⁹

The Movement Control Team (MCT) is a unique, twenty-one Soldier team, a modular unit capable of splitting into four working sub-units at four separate locations.⁴⁰ This capability however requires strong leadership skills of detachment commanders, senior Non-Commissioned Officer (NCO) detachment Non-Commissioned Officers in Charge (NCOIC), and subordinate Soldiers. There are 120 plus MCTs; 80 percent of the MCTs are in the USAR.⁴¹

The last decade of war has highlighted several challenges in Army movement control. Overall, these issues concern how the MCB and its MCTs do not train as they would fight due to structural shortfalls, training deficiencies, joint interoperability challenges, and AC-RC separation. In short, these units are not used for their designed capability during peacetime, garrison operations.

Recent operations often exceeded the MCB's doctrinal span of control of four to ten MCTs and potentially another company to some ten to twenty-seven MCTs.⁴² So many subordinate elements were a great challenge for the battalion commander and his staff to exercise proper command and control. This operational tempo has highlighted the criticality of manning. Personnel fill to authorized number and grade well before deployment is important to set the stage for future mission success.

Personnel increases are unpopular topics, especially during fiscal austerity, but small HQ personnel changes would enhance the organizational structure of the MCB, and thus its effectiveness on operations. The current modified table of organization and equipment (MTOE) requires two personnel additions: a battalion motor sergeant, MOS

88M40 in the S4 and a CW3 Army rotary-wing aviator 154 Series with logistics and cargo helicopter experience. MCTs as detachments have no ability to provide any self support. The MCB HQ S4 has a quartermaster sergeant for property accountability. The MCB and its subordinate MCTs currently have no maintenance management expertise. Similarly, the addition specifically of a CW3 Cargo/Medium Lift Helicopter Aviator would provide the only aviation knowledge on the MCB staff, responsible for the integration and synchronization of all modes of transportation, of which rotary wing forms an extensive element on operations.

In the MCTs leader selection and development require closer, more-intensive command focus and management in peacetime. Senior Captains should fill MCT command positions. They can expect to operate in austere conditions and dynamic circumstances, and must be prepared to lead aggressively and execute missions with minimal guidance and direct supervision.

Garrison operations are currently the greatest gap for movement control Soldiers, as they show major training shortfalls. First, MCB and MCT higher chains of command with training readiness and oversight (TRO) must facilitate peacetime training which mirrors and rehearses wartime missions. For example, Soldiers should work daily with installation personnel in Directors of Logistics and Transportation Offices. Development of these working relationships will expose them to daily movement-control operations in military convoy tracking and commercial truck and rail movements. Second, over ten years of war have highlighted the need for a joint program in peacetime.

The MCB requires joint personnel augmentation who work and train daily in peacetime, achieving the next level in jointness. Examples are an Air Force logistics

Major or Captain and Technical Sergeant to create an air section. There should also be a Marine Battle Captain position to facilitate training in sea port operations and the transition of USMC forces from naval component to land component command and control (C2).

This joint augmentation should be part of a joint educational training program to mitigate the learning curve in execution. Operations in the last decade showed again and again the multi-modal nature of movement control at the theater-strategic level and in a Joint Operations Area (JOA). The necessary staff integration and synchronization was usually ad hoc instead of implementing what Soldiers, airmen, Marines, and sailors should have learned and practiced in peacetime training. The Services should plan for more joint training in movement control operations in peacetime. Service elements could work from home station locations during the training by leveraging existing technologies.

Peacetime Integration and Synchronization

There remains a significant issue in Army peacetime movement control. The number of MCBs and MCTs may reduce, but the larger issue is AC and RC integration. MCB and MCT unit alignment for active and reserve units during CONUS training and conduct of missions is seriously disjointed, and not synchronized with future ARFORGEN task organizations.

AC MCBs are assigned to an ESC at various locations around the U.S. and overseas. These five active MCBs rarely interact with reserve MCT units in training. There are challenges of timing and money to link reserve unit training with active units. However, both the Regular Army and U.S. Army Reserve need to begin an effort to align training within their Army Force Generation cycles.⁴³ This initiative will enable both

organizations to plan training in parallel. Synchronizing training calendars to integrate training would enhance readiness. Aligning similar unit training also has multiple effects in relationship-building and cohesion among the components.

This training is not impossible to achieve. CONUS pre-deployment training for OEF and OIF/OND demonstrated the possibilities with the FORSCOM Mission Readiness Exercise (MRX) and the Combined Arms Support Command (CASCOM), Communications Practical Exercise-Sustainment (CPX-S). Additionally, the well-established practice of direct liaison authority (DIRLAUTH) granted AC and RC units developed peacetime plans, training, and relationships long before deployment and the implementation of their task organization in theater.

Thus, an AC MCB could align with two-four AC MCTs and two-four USAR MCTs, coordinated by geographical location. The AC MCB also aligns with a USAR MCB which has the same or similar assigned and aligned unit strength, two-four AC and two-four USAR MCTs. These relationships would link peacetime training directly with future wartime missions, and can leverage advances in technology, including virtual training scenarios.

Conclusion

This paper has explored the five Army Transportation Systems. The last decade plus of war overstressed major elements, specifically the rotary-wing and truck fleets. The Army's FHTV are on track with dual programs of fleet reductions and recapitalization of the future fleets. The CH-47F upgrade has been good news for the Army, but these have already been involved in extensive operations. The loss of the C-27J Spartan remains the major shortfall for future, long-term sustainability in theater.

The forthcoming change in effective command and control of Army watercraft will posture these low-density units for better effectiveness. Army rail assets are exploring initiatives to assist the GCCs more effectively from steady-state through contingency operations.

The Army's movement control battalions and subordinate teams have taken considerable space in this paper. The analysis has made several recommendations in several areas.

The US Army's strong commitment to meet the ongoing and emerging needs of the Joint Services is clear, especially to demonstrate genuine joint interdependence and cross-domain synergy. This paper has reviewed how the Army is laying the groundwork to achieve greater internal efficiencies while ensuring joint effectiveness. Integration has been and will continue to be through synchronized effort with other service components and government agencies to procure the right and most cost-effective method of distribution that meets the theater-strategic requirements of the GCCs. Army Transportation Systems are part of the solution to joint readiness through continued, incremental steps.

Arguing for greater integration and synchronization by Army component and by Service are not radical proposals. The challenge will be the flexibility to see the potential in a period of great financial austerity.

Endnotes

¹ Sun Tzu, Logistics Quotations, Naval Supply Systems Command (NAVSUP) http://www.au.af.mil/au/awc/awcgate/navy/log_quotes_navsup.pdf (accessed March 12, 2013).

² U.S. Joint Chiefs of Staff, *Joint Operational Planning*, Joint Publication 3-0 (Washington, DC: U.S. Joint Chiefs of Staff, August 11, 2011), Executive Summary, xv-xvi.

³ Lt. Col. Mark Metz, U.S. Army (Ret.), Rail Committee, US Army Transportation Corps Museum Foundation. <http://militaryrailwayservice.blogspot.com/2011/06/to-mrs-veterans-and-friends-on-june-20.html> (accessed March 12, 2013).

⁴ The John A. Volpe National Transportation Systems Center or simply Volpe Center is located on the campus of NASA's former Electronics Research Center, 55 Broadway, Cambridge, Massachusetts, is a center of transportation and logistics expertise, operating under the United States Department of Transportation. National Transportation Systems Center, Research and Innovative Technology Administration (RITA) • U.S. Department of Transportation (US DOT), 1200 New Jersey Avenue, SE • Washington, DC 20590 • 800.853.1351 <http://www.volpe.dot.gov/> (accessed March 12, 2013).

⁵ The John A. Volpe National Transportation Systems Center <http://www.volpe.dot.gov/infosrc/yir/2008/physical.html> (accessed March 12, 2013).

⁶ Maj. Scott D. Steppe, Surface Deployment Distribution Command Brief, Scott Air Force Base, IL May 2012.

⁷ Ibid.

⁸ 757th Transportation Battalion (Railway), Headquarters is located at 2372 South Logan Avenue, Milwaukee, WI 53207-1799. An element of the 336th Transportation Group-Ft. Sheridan, IL under the 88th Regional Support Command-Ft. Snelling, MN- United States Army Reserve

⁹ Col. David T. Pollard, "The US Army Reserve Expeditionary Rail Center," *Defense Transportation Journal* 68. (Feb 2012): 8, 10, 13-14. Pollard works in G-3/7, SDDC.

¹⁰ Ibid.

¹¹ Defense and Security Intelligence and Analysis: IHS Jane's, Army, United States, Jane's Sentinel Security Assessment - North America, October 18, 2012, PDF 14. <https://janes.ihs.com.ezproxy.usawcpubs.org/CustomPages/Janes/DisplayPage.aspx?ShowProductLink=true&ItemId=1303949> (accessed March 12, 2013).

¹² Ann Roosevelt, New Army Aviation Office Divesting C-23 Sherpa Aircraft, *Defense Daily* 254 (Apr 9, 2012).

¹³ 313th Joint Movement Control Battalion, Bagram, Air Mobility Section, fixed wing, Afghanistan, November 2010-2011. Unit contract officer representative responsibility to manage short take off and land (STOL) aircraft.

¹⁴ The Congress of the U.S., Congressional Budget Office, white paper study "Modernizing the Army's Rotary-Wing Aviation Fleet", 2007, 9. <http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/88xx/doc8865/11-30-helicopters.pdf> (accessed March 12, 2013).

¹⁵ Sgt, Charles Brice, U.S. Army, Special to American Forces Press Service, "Low Cost Low Altitude" air delivery system, <http://www.defense.gov/News/NewsArticle.aspx?ID=50245> (accessed March 12, 2013).

¹⁶ Lockheed Martin Alenia Tactical Transport Systems (LMATTS), LMATTS is a joint venture company based in Marietta, Georgia, which was set up by Lockheed Martin and Alenia Aeronautica, which is part of the Finmeccanica company of Italy. "In June 2007, the C-27J was chosen as the US Army / Air Force new joint cargo aircraft (JCA). The initial contract is for 78 aircraft (54 for the army and 24 for the USAF)." <http://www.airforce-technology.com/projects/spartan/> (accessed March 12, 2013).

¹⁷ Marcus Weisgerber, Staff-Writer, The Air Force Times, "Air Force sends home the C-27Js cargo planes", June 2012. <http://www.airforcetimes.com/news/2012/06/air-force-c-27j-cargo-planes-sent-home-062012d/> (accessed March 12, 2013).

¹⁸ Ann Roosevelt, New Army Aviation Office Divesting C-23 Sherpa Aircraft, *Defense Daily* 254 (Apr 9, 2012).

¹⁹ Ibid.

²⁰ Defense and Security Intelligence and Analysis: IHS Jane's, Army, United States, Jane's Sentinel Security Assessment - North America, October 18, 2012, PDF 14. <https://janes.ihs.com.ezproxy.usawcpubs.org/CustomPages/Janes/DisplayPage.aspx?ShowProductLink=true&ItemId=1303949> (accessed March 12, 2013).

²¹ U.S. Army Fact Files, Weapons Systems, Aircraft, Chinook. <http://www.army.mil/factfiles/equipment/aircraft/chinook.html> (accessed March 12, 2013).

²² Defense Media Network, <http://www.defensemedianetwork.com/stories/combat-lessons-improve-the-ch-47f/> (accessed March 12, 2013).

²³ 313th Joint Movement Control Battalion, Bagram, Air Mobility Section, fixed wing, Afghanistan, March, 2011. Unit contract officer representative, manage short take off and land (STOL) aircraft. The FAA grounded the commercial contract fleet for a roller modification, March 2011. Personal knowledge, I was the commander for 313th Joint Movement Control Battalion.

²⁴ Mine Resistant Ambush Protected vehicle, http://olive-drab.com/idphoto/id_photos_mrap.php (accessed March 12, 2013).

²⁵ Steve E Barrett, SSO, Heavy Tactical Vehicles, HQDA, G-8 DAPR-FDL, Building 211, 21st St, Fort Belvoir, VA 22060-5581, Telephone interview by author, Tuesday, March 12, 2013.

²⁶ See M915, HEMTT and HET numbers from page 10.

²⁷ Lt. Col, Paul Shuler, Program Manager, Heavy Tactical Vehicles, Program Executive Office, Combat Support & Combat Service Support, SFAE-CSS, 6501 E 11 Mile Rd., Warren, MI 48397-5000 <http://www.peocscss.army.mil/PdMHTV.html> (accessed March 12, 2013).

²⁸ Steve E Barrett, SSO, Heavy Tactical Vehicles, HQDA, G-8 DAPR-FDL, Building 211, 21st St, Fort Belvoir, VA 22060-5581, Telephone interview by author, Tuesday, March 12, 2013.

²⁹ Ibid.

³⁰ Ibid.

³¹ Lt. Col, Paul Shuler , Program Manager, Heavy Tactical Vehicles, Program Executive Office, Combat Support & Combat Service Support, SFAE-CSS, 6501 E 11 Mile Rd., Warren, MI 48397-5000 <http://www.peocscss.army.mil/PdMHTV.html> (accessed March 12, 2013).

³² Ibid.

³³ Jennifer E. Trossbach, Chief Warrant Officer Five, US Army, Army G-44 Chief Mobility Warrant (Watercraft), interview replied on Monday, January 28, 2013 9:35 AM

³⁴ MG John M. Murray, Director of Force Management, "Approval of Force Design Update Jr. and Table of Organization and Equipment for Standard Requirements Code 55812R000 Army Intermodal Brigade Expeditionary," Washington, DC, Office of the Deputy Chief of Staff, G-3/5/7, September 20, 2012.

³⁵ Robert M. Villalobos, *Rebalancing to the Pacific: Re-Examining Army Transportation Expeditionary Capability*, Strategy Research Project (Carlisle Barracks, United States Army War College, 2013), 11.

³⁶ Naval Today Staff, February 2, 2013. <http://navaltoday.com/2013/02/11/usns-spearhead-pays-maiden-visit-to-port-of-st-petersburg/> (accessed March 12, 2013).

³⁷ U.S Department of the Army, *Movement Control*, ADP 4-16 (Washington, DC: U.S Department of the Army, July 12, 2012), 4-1.

³⁸ Lt. Col. Lillard Evans, Maj. Kevin M. Baird, and Chief Warrant Officer 4 Ki Han, The Training of Movement Control Teams, *Army Sustainment*, Volume 44, Issue 2, March – April 2012. http://www.almc.army.mil/alog/issues/MarApril12/The_Training_Movement.html (accessed March 12, 2013).

³⁹ U.S Department of the Army, *Movement Control*, ADP 4-16 (Washington, DC: U.S Department of the Army, July 12, 2012), 4-1.

⁴⁰ Ibid.

⁴¹ Maj. Jonathan G. Cameron, U.S. Army, The New Modular Movement Control Team, *Logistics Management*, Volume 38, Issue 2, March – April 2006, http://www.almc.army.mil/alog/issues/marapr06/new_modular_move.html (accessed March 12, 2013).

⁴² 313th Joint Movement Control Battalion, Bagram, Air Force Base, Afghanistan, November 2010 – October 2011. Personal knowledge, I was the commander for 313th Joint Movement Control Battalion.

⁴³ U.S. Department of the Army, *Army Force Generation*, Regulation 525-29 (Washington, DC: U.S. Department of the Army, march 14, 2011), 1.